Appendix B Meteorological Data

This section contains meteorological data derived from various regulatory and non-regulatory sites. The data provides a comparative analysis of winds speed, wind direction, wind gusts and concentration data. Please note that meteorological instruments measure at different heights, and at different time intervals. By taking, the actual time of measurement and assuring that all data represented is in Pacific Standard Time (PST) there is uniformity of the data. In addition, not all stations measure at the exact same time, i.e. measurements at 053 and 056 therefore, comparisons are measurements within a 60-minute period. While there may be some overlapping and slight differences the comparative analysis provides the reader with a better understanding of the regional effect of the Exceptional Event.

METEOROLOGICAL SITES IN SOUTHEASTERN CALIFORNIA AND YUMA, ARIZONA

Working Miles and Miles

Approximate from the Control of Control

Fig B-1: This image shows the meteorological sites and the air quality monitoring sites used in this document. Google Earth base map. Inset locator map of California from Wikipedia

IMPERIAL COUNTY SITES FIGURES B-2 THROUGH B-13

FIGURE B-2 IMPERIAL COUNTY AIRPORT WIND SPEED, GUSTS AND DIRECTION

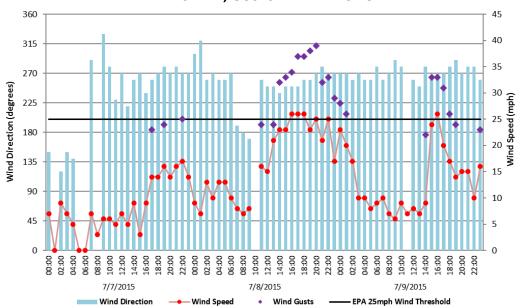
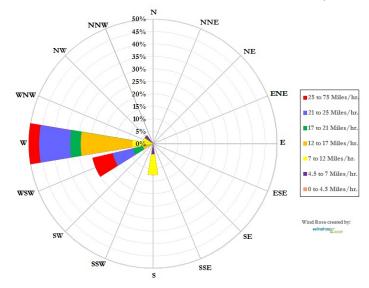


FIGURE B-3
IMPERIAL COUNTY AIRPORT WIND ROSE JULY 8, 2015



Figs B-2 & B-3: Imperial Airport meteorological data for July 8, 2015 and July 7-9, 2015, showing a dramatic increase in wind speed accompanied by gusts during the afternoon and evening hours on July 8, 2015. Wind data from the NCEI's QCLCD system

FIGURE B-4 EL CENTRO NAF (KNJK) WIND SPEED, GUSTS AND DIRECTION

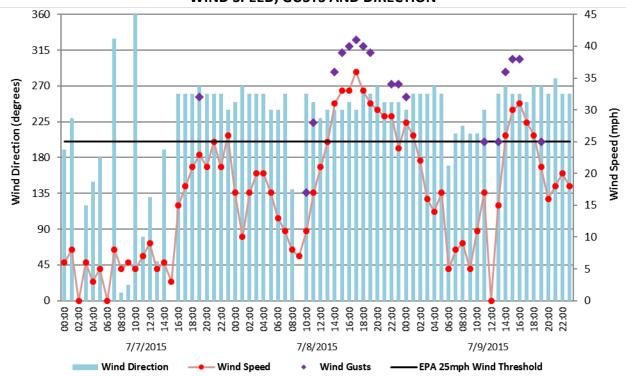
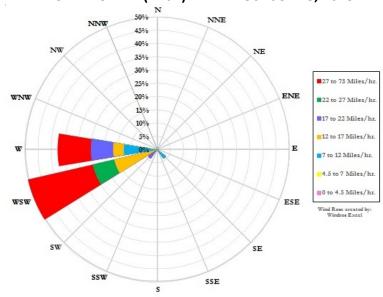


FIGURE B-5 EL CENTRO NAF (KNJK) WIND ROSE JULY 8, 2015



Figs B-4 & B-5: El Centro NAF meteorological data for July 8, 2015 and July 7-9, 2015, showing a dramatic increase in wind speed accompanied by gusts during the afternoon and evening hours on July 8, 2015. Wind data from the NCEI's QCLCD system



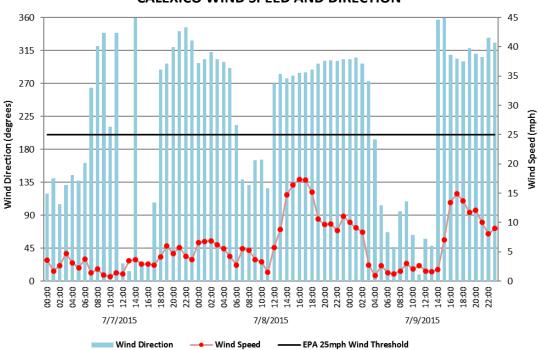
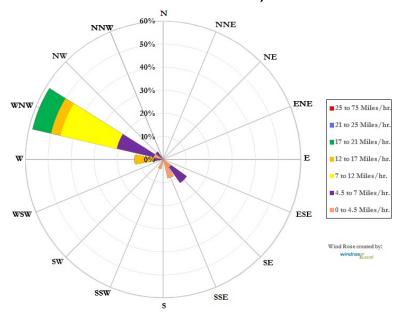


FIGURE B-7 CALEXICO WIND ROSE JULY 8, 2015



Figs B-6 & B-7: Calexico meteorological data for July 8, 2015 and July 7-9, 2015, shows a WNW direction on event day. Wind data from the EPA's AQS system



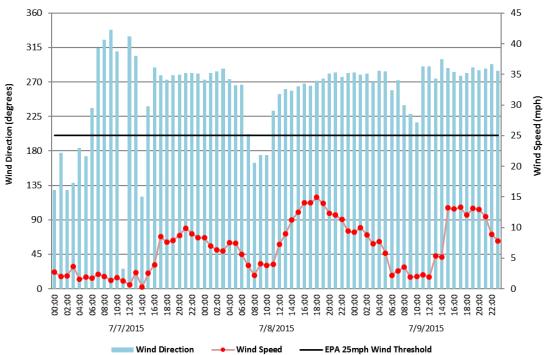
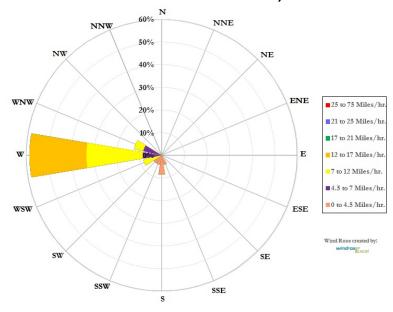


FIGURE B-9 EL CENTRO WIND ROSE JULY 8, 2015



Figs B-8 & B-9: El Centro meteorological data for July 8, 2015 and July 7-9, 2015, shows a westerly direction on event day. Wind data from the EPA's AQS system



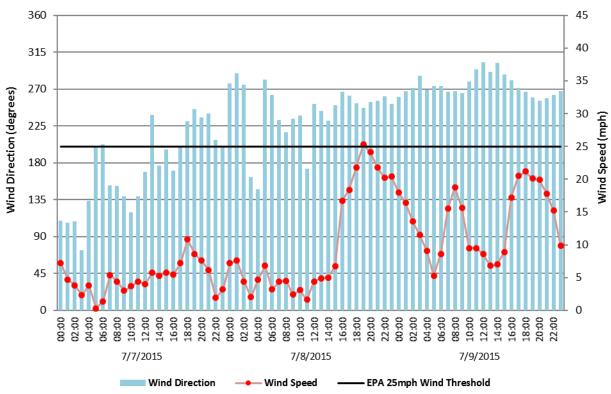
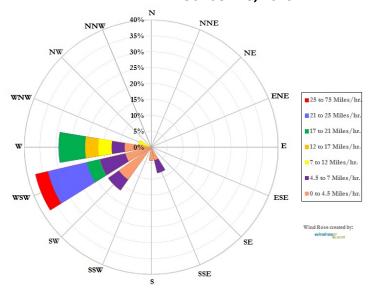


FIGURE B-11 NILAND WIND ROSE JULY 8, 2015



Figs B-10 & B-11: Niland meteorological data for July 8, 2015 and July 7-9, 2015 shows a dramatic increase in wind speed starting the early afternoon hours on July 8, 2015 indicating the impact of wind event. Wind data from the EPA's AQS data bank

FIGURE B-12
WESTMORLAND WIND SPEED AND DIRECTION

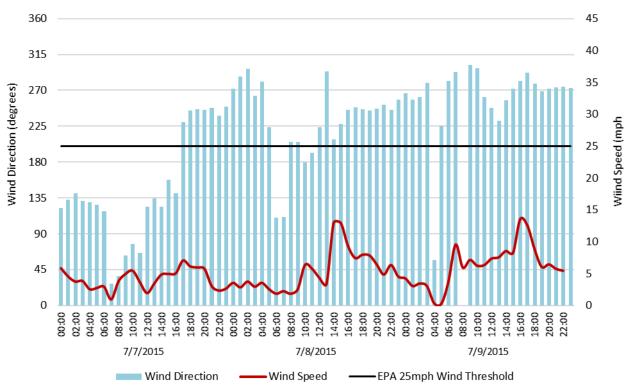
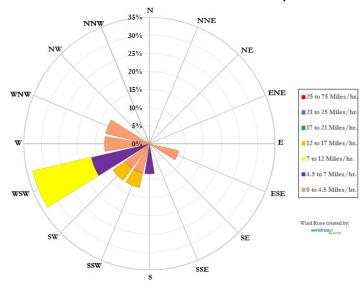


FIGURE B-13
WESTMORLAND WIND ROSE JULY 8, 2015



Figs B-12 & B-13: Westmorland meteorological data for July 8, 2015 and July 7-9, 2015, shows a WSW direction on event day. Wind data from the EPA's AQS system

RIVERSIDE COUNTY SITES

FIGURE B-14 TORRES-MARTINEZ DESERT CAHUILLA INDIANS RESERVATION WIND SPEED AND DIRECTION

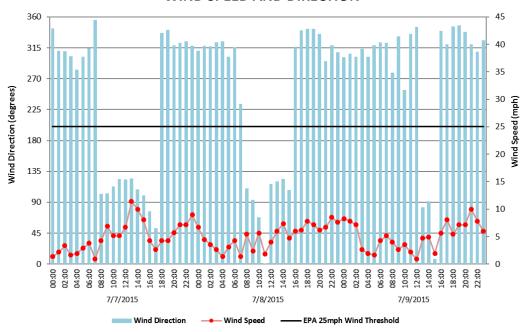


Fig B-14: Torres-Martinez Desert Cahuilla Indian Reservation meteorological data for July 7-9, 2015. Wind data from the EPA's AQS system

FIGURE B-15

JACQUELINE COCHRAN REGIONAL AIRPORT (KTRM)

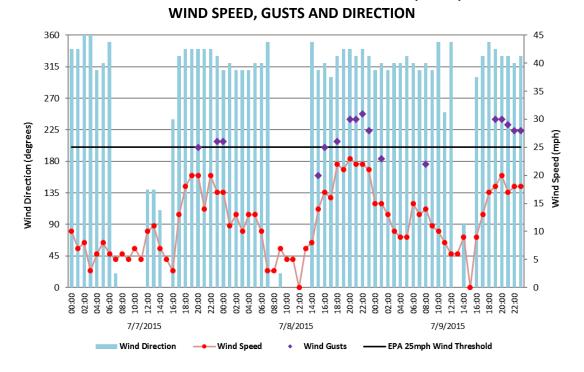
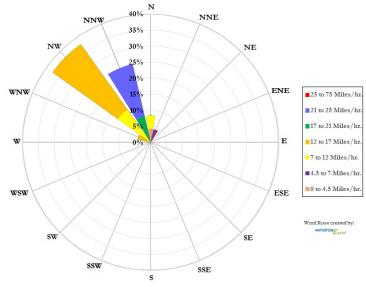


FIGURE B-16
JACQUELINE COCHRAN REGIONAL AIRPORT (KTRM) WIND ROSE JULY 8, 2015



Figs B-15 & B-16: Jacqueline Cochran-Desert Resorts Regional Airport meteorological data for July 7, 2015 to July 9, 2015. Wind data from the NCEI'S QCLCD system

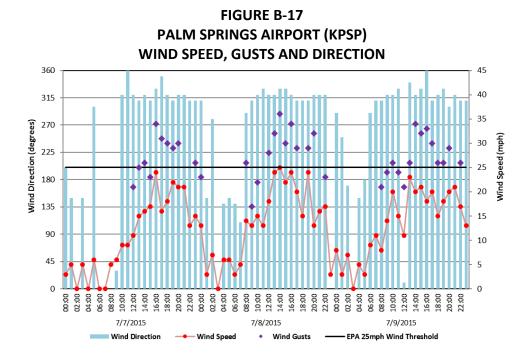


Fig B-17: Palm Springs Regional Airport meteorological data for July 7, 2015 to July 9, 2015. Wind data from the NCEI'S QCLCD system

FIGURE B-18

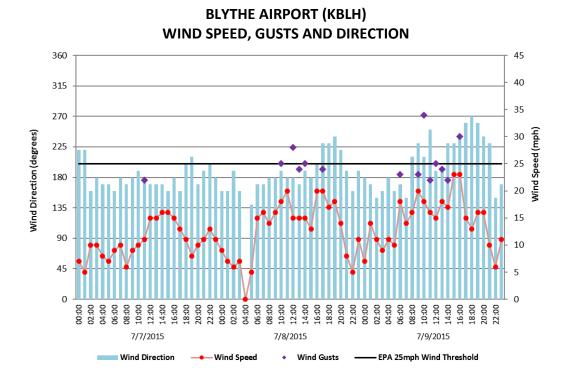


Fig B-18: Blythe Airport meteorological data for July 7, 2015 to July 9, 2015. Wind data from the NCEI'S QCLCD system

SOUTHEASTERN SAN DIEGO COUNTY

FIGURE B-19 CAMPO AIRPORT (KCZZ) WIND SPEED, GUSTS AND DIRECTION

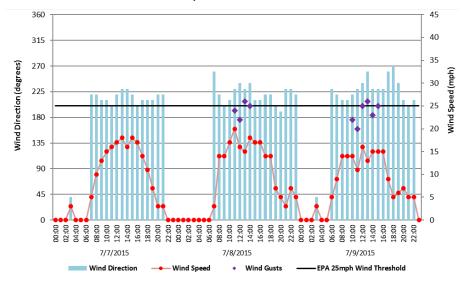


Fig B-19: Campo Airport is in the San Diego mountains. Wind data from the NCEI's QCLCD

SOUTHWESTERN ARIZONA

FIGURE B-20 YUMA ARIZONA MCAS (KNYL) WIND SPEED, GUSTS AND DIRECTION

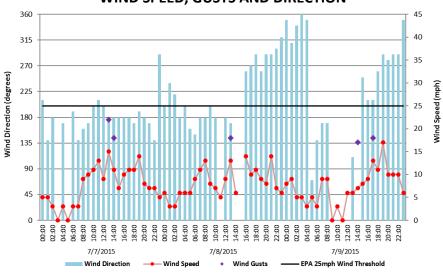


Fig B-20: Yuma MCAS meteorological data for July 7, 2015 to July 9, 2015. Wind data from the NCEI's QCLCD system

MEXICO

FIGURE B-21 MEXICALI INTERNATIONAL AIRPORT (MMML) WIND SPEED AND DIRECTION

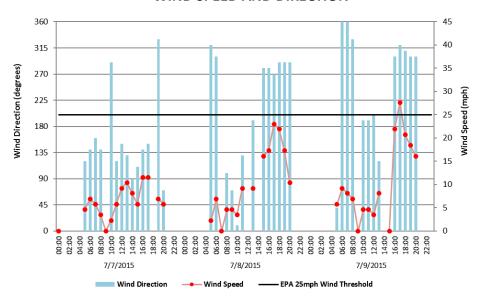


Fig B-21: Mexicali International Airport wind data for July 7-9. Wind data from the NCEI's QCLCD system

UPSTREAM WIND SITES

FIGURE B-22 VOLCAN MOUNTAIN WIND SPEED, GUSTS AND DIRECTION

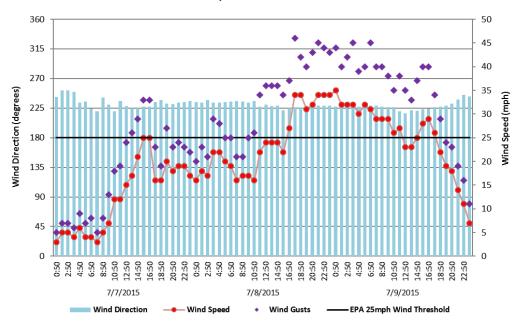
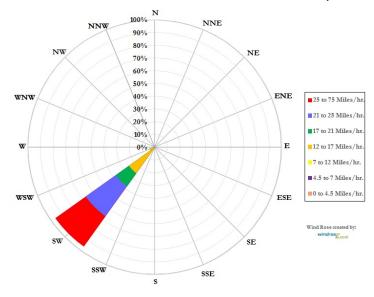


FIGURE B-23 VOLCAN MOUNTAIN WIND ROSE JULY 8, 2015



Figs B-22 & B-23: Volcan Mountain (VCMSD) meteorological data for July 8, 2015 and July 7-9, 2015. Wind data from the University of Utah's MesoWest data bank

FIGURE B-24 SUNRISE-OCOTILLO WIND SPEED, GUSTS AND DIRECTION

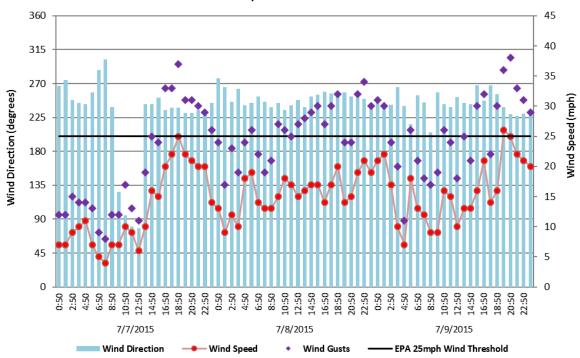
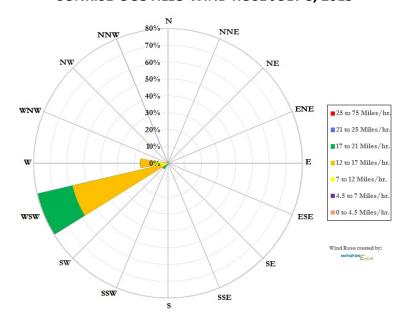


FIGURE B-25 SUNRISE-OCOTILLO WIND ROSE JULY 8, 2015



Figs B-24 & B-25: Sunrise-Ocotillo (IMPSD) meteorological data for July 8, 2015 and July 7-9, 2015, shows a WSW direction on event day. Wind data from the University of Utah's MesoWest data bank

FIGURE B-26 OCOTILLO WELLS WIND SPEED, GUSTS AND DIRECTION

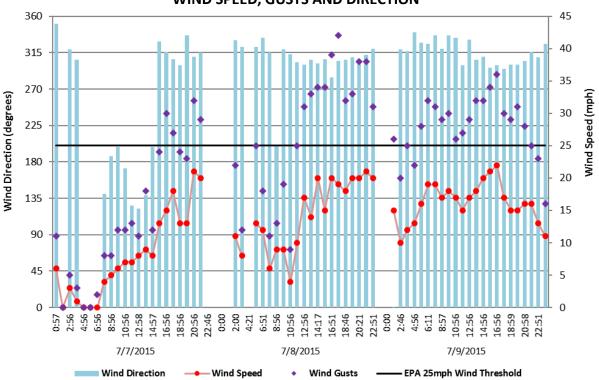
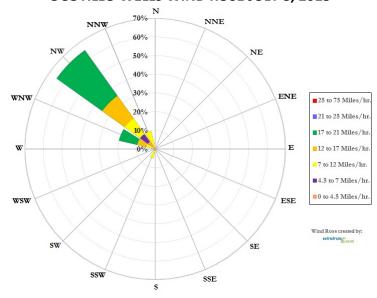


FIGURE B-27 OCOTILLO WELLS WIND ROSE JULY 8, 2015



Figs B-26 & B-27: Ocotillo Wells (AS938/KD6RSQ5) meteorological data for July 8, 2015 and July 7-9, 2015, shows a NW direction on event day. Wind data from the University of Utah's MesoWest data bank

FIGURE B-28 NAVAL TEST BASE WIND SPEED, GUSTS AND DIRECTION

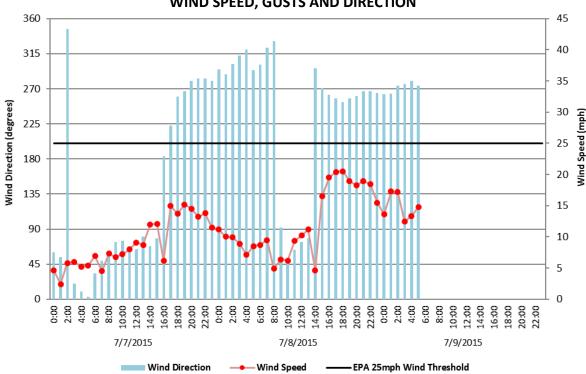
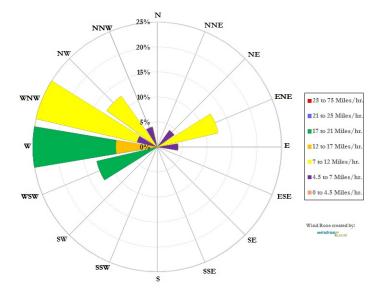


FIGURE B-29 NAVAL TEST BASE WIND ROSE JULY 8, 2015



Figs B-28 & B-29: The (former) Naval Test Base meteorological data for July 8, 2015 and July 7-9, 2015. Wind data from AQMIS2 data bank



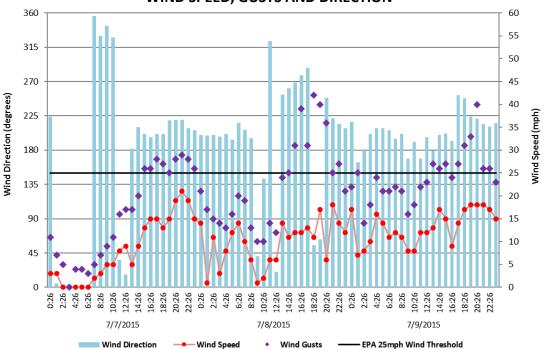
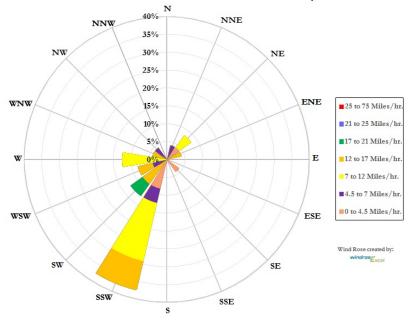


FIGURE B-31
FISH CREEK MTNS. WIND ROSE JULY 8, 2015



Figs B-30 & B-31: The Fish creek Mountains (FHCC1) meteorological data for July 8, 2015 and July 7-9, 2015. Wind data from the University of Utah's MesoWest data bank



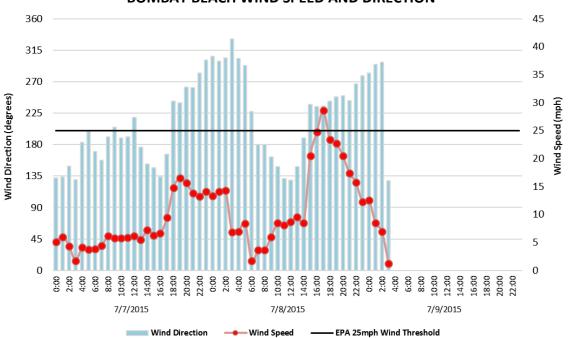
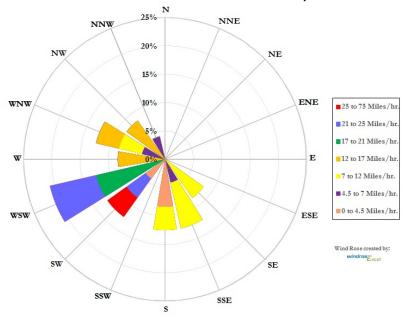


FIGURE B-33
BOMBAY BEACH WIND ROSE JULY 8, 2015



Figs B-32 & B-33: Bombay Beach meteorological data for July 8, 2015 and July 7-9, 2015. Wind data from AQMIS2 data bank. Partial data for July 9 is absent



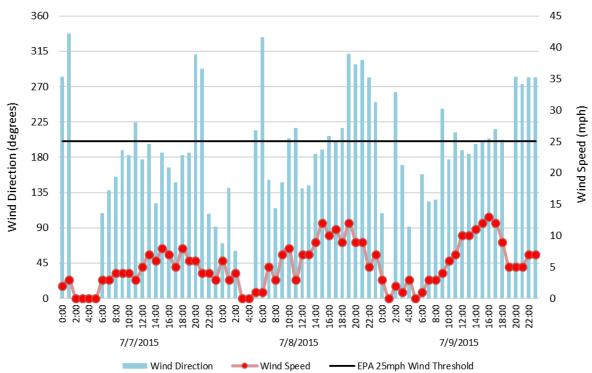
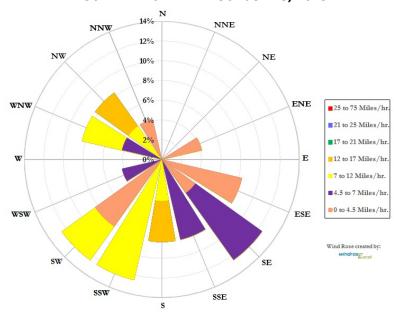


FIGURE B-35
DOS PALMAS WIND ROSE JULY 8, 2015



Figs B-34 & B-35: Dos Palmas meteorological data for July 8, 2015 and July 7-9, 2015. Wind data from the University of Utah's MesoWest data bank



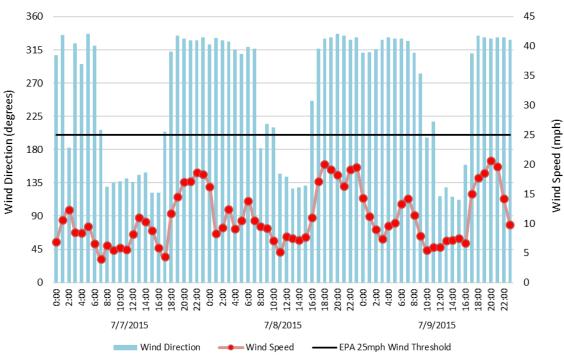
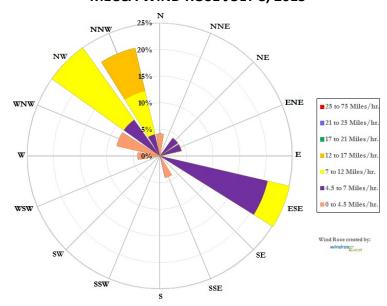


FIGURE B-37 MECCA WIND ROSE JULY 8, 2015



Figs B-36 & B-37: Mecca meteorological data for July 8, 2015 and July 7-9, 2015. Wind data from AQMIS2 data bank

FIGURE B-38 IMPERIAL COUNTY AIRPORT (KIPL) QCLCD JULY 7, 2015

U.S. Department of Commerce National Oceanic & Atmospheric Administration QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final) HOURLY OBSERVATIONS TABLE IMPERIAL COUNTY AIRPORT (03144) IMPERIAL, CA (07/2015)

National Climatic Data Center Federal Building 151 Patton Avenue Asheville, North Carolina 28801

Elevation: -58 ft. below sea level

Latitude: 32.834 Longitude: -115.578 Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	В	Ory Julb emp	E	Wet Bulb emp	P	ew oint emp	Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti- meter (in. hg)
1	2	3	4	5	6	7	8	9	_	11	12	13	14	15	16	17	18	19	20	21	22	23
07 07 07 07 07 07 07 07 07 07 07 07 07 0	0053 0153 0253 0453 0453 0553 0753 0853 1053 1153 1253 1453 1753 1753 1753 1753 1753 1753 1753 17	12 12 12 12 12 12 12 12 12 12 12 12 12 1	CLR	10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00		107 108	27.8 27.2 27.2 28.3 29.4 31.1 32.8 35.6 37.2 38.9 41.1 41.7 42.2 41.7 37.8 35.0 33.3	70 70 71 71 72 72 71 70 71 68 70 71 68 65 63 63 63	20.7 21.2 21.1 21.7 21.8 22.0 22.1 21.8 22.1 21.8 21.1 21.3 19.9 21.6 20.7 21.7 19.7 19.7 19.7 19.7 10.9 10.9 10.9 10.9 10.9 10.9 10.9 10.9	61 64 64 65 64 63 57 53 52 41 46 49 45 50 44 43 44 43 42	16.1 17.8 17.8 17.8 18.3 17.2 16.7 13.9 11.7 11.1 5.0 7.8 9.4 7.2 10.0 7.8 6.1 4.4 5.0 6.1 5.6	56 55 55 49 43 38 27 21 19 11 13 14 12 15 16 17 18 18 21 21	7 0 9 7 5 0 0 0 7 3 6 6 6 5 7 5 9 3 9 1 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	270 280	23 24 25	29.83 29.82 29.82 29.85 29.86 29.86 29.87 29.87 29.87 29.87 29.72 29.72 29.72 29.72 29.72 29.72 29.73 29.74 29.75 29.75 29.75			29.77 29.76 29.78 29.79 29.80 29.81 29.81 29.81 29.79 29.75 29.75 29.72 29.65 29.62 29.63 29.63 29.63 29.65 29.63 29.65 29.68	AA AA AA AA AA AA AA AA AA AA AA AA AA		29.77 29.76 29.76 29.78 29.80 29.81 29.81 29.80 29.77 29.74 29.72 29.66 29.66 29.63 29.61 29.63 29.64 29.68 29.68

Dynamically generated Wed Mar 30 16:17:06 EDT 2016 via http://www.ncdc.noaa.gov/qclcd/OCLCD

FIGURE B-39 IMPERIAL COUNTY AIRPORT (KIPL) QCLCD JULY 8, 2015

U.S. Department of Commerce National Oceanic & Atmospheric Administration QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final) HOURLY OBSERVATIONS TABLE IMPERIAL COUNTY AIRPORT (03144) IMPERIAL, CA (07/2015) National Climatic Data Center Federal Building 151 Patton Avenue Asheville, North Carolina 28801

Elevation: -58 ft. below sea level Latitude: 32.834 Longitude: -115.578 Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	B Te	Ory ulb emp	E Te	Vet ulb emp	Po Te	ew pint mp	Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti- meter (in. hg)
1	2	3	4	5	6	(F)	(C)	(F)	(C)	(F)	12	13	14	15	16	17	18	19	20	21	22	23
08 08 08 08 08 08 08 08 08 08 08 08 08 0	0053 0153 0253 0353 0353 0453 0653 0653 0953 1153 1253 1353 1453 1553 1753 1853 1953 2053 2253	12 12 12 12 12 12 12 12 12 12 12 12 12 1	CLR	10.00 10.00		83 81 82 79 80 82 85 85 89 93 95 98 100 102 100 97 94 90 85 83 83 80 77 77	28.3 27.2 27.8 26.1 26.7 27.8 29.4 31.7 33.9 35.0 36.7 37.8 38.9 37.8 36.1 32.2 29.4 28.3 26.7	59 58 57 57 57 58 61 62 62 64 65 67 67 66 63 62 62 61 60	14.8 14.1 14.0 14.1 13.7 14.5 16.5 17.9 18.1 19.2 18.3 19.3 19.1 19.6 19.1 17.2 16.4 16.4 16.5 16.5	37 36 34 35 37 42 40 35 41 39 43 48 48 48 47 45 46 46	2.8 2.2 1.1 3.3 1.7 2.8 5.6 4.4 1.7 5.0 3.9 6.1 2.2 5.6 6.1 8.9 8.9 8.3 7.2 7.8	19 20 18 23 20 20 22 18 13 15 13 14 10 13 14 21 22 26 26 30 31	9 7 13 13 13 13 10 8 7 8 16 15 121 223 226 223 225	300 320 260 270 260 260 270 190 180 170 M 260 250 250 250 250 250 260 270	24 24 32 33 37 37 38 39 32 33 39 32 32 32	29.72 29.72 29.72 29.72 29.73 29.75 29.76 29.77 29.76 29.77 29.76 29.67 29.67 29.67 29.68 29.67 29.69 29.77 29.68 29.69 29.77 29.79 29.70 29.70 29.70 29.70 29.70 29.70 29.70 29.70 29.70 29.70 20.70	.9		29.66 29.66 29.66 29.66 29.67 29.70 29.70 29.70 29.70 29.68 29.66 29.65 29.62 29.60 29.59 29.61 29.60 29.63 29.65 29.65 29.65 29.65 29.65 29.65 29.65 29.65 29.65 29.65 29.65 29.65 29.65 29.65 29.66 20.66	AA AA AA AA AA AA AA AA AA AA	Т	29.66 29.66 29.66 29.66 29.66 29.69 29.70 29.70 29.70 29.70 29.68 29.66 29.62 29.61 29.62 29.61 29.62 29.63 29.63 29.63 29.63 29.63 29.63 29.63 29.63

Dynamically generated Wed Mar 30 16:17:46 EDT 2016 via http://www.ncdc.noaa.gov/qclcd/QCLCD

FIGURE B-40 EL CENTRO NAF (KNJK) QCLCD

U.S. Department of Commerce National Oceanic & Atmospheric Administration QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (may be updated) HOURLY OBSERVATIONS TABLE NAF (23199) EL CENTRO, CA (07/2015) National Climatic Data Center Federal Building 151 Patton Avenue Asheville, North Carolina 28801

Elevation: -42 ft. below sea level

Latitude: 32.816 Longitude: -115.683 Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	В	Ory ulb emp	В	Vet ulb mp (C)	P	ew pint emp (C)	Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti- meter (in. hg)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
07 07 07 07 07 07 07 07 07 07 07 07 07 0	0156 0256 0356 0456 0558 0656 0756 0856 0956 1156 1256 1356 1456 1456 1642 1666 1756 1856 1956 2056 2256	349499499999999999999999999999999999999	CLR CLR CLR CLR FEW070 FEW080 FEW070 FEW080 CLR CLR CLR	10.00 10.00		108 108 109 108 102 97 94 91 89 87	30.0 27.2 25.0 25.6 27.8 30.0 32.2 34.4 36.1 38.3 40.0 41.1 42.2 42.2 42.8 42.2 38.9	68 67 68 70 70 71 72 71 70 69 69 68 68 68 64 62 62 62	19.5 19.4 19.9 20.9 21.3 22.1 22.1 22.0 21.4 21.2 20.4 20.5 20.2 20.2 20.2 20.2 18.6 17.6 16.8 16.5 16.5	57 59 61 62 63 62 61 60 58 53 50 44 45 43 41 40 38 37 38 40 38	16.7 17.2 16.7 16.1 15.6 14.4 11.7 10.0 6.7 7.2 6.1 5.0 4.4 4.4 3.3 2.8 2.2 3.3 4.4 3.3	37 47 55 55 43 43 43 22 20 11 11 11 11 11 11 11 11 11 11 11 11 11	8 5 6 5	190 230 000 120 150 180 000 330 010 020 360 080 130 050 190 VR 260 260 260 260 260 260 260 260 260 260	32	29.82 29.82 29.82 29.84 29.85 29.87 29.87 29.87 29.87 29.80 29.80 29.80 29.80 29.80 29.80 29.80 29.75 29.75 29.75 29.75 29.75 29.75 29.75 29.75 29.75			29.83 29.83 29.84 29.86 29.87 29.88 29.88 29.88 29.86 29.81 29.75 29.72 29.70 M 29.69 29.69 29.69 29.73 29.73 29.73 29.73 29.73	AA	т	29.79 29.78 29.80 29.80 29.80 29.83 29.83 29.83 29.83 29.82 29.74 29.71 29.74 29.71 29.65 29.65 29.65 29.65 29.65 29.67 29.67 29.67 29.69

Dynamically generated Wed Mar 30 16:14:42 EDT 2016 via http://www.ncdc.noaa.gov/aclcd/QCLCD

FIGURE B-41

EL CENTRO NAF (KNJK) QCLCD JULY 8, 2015

U.S. Department of Commerce National Oceanic & Atmospheric Administration QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (may be updated) HOURLY OBSERVATIONS TABLE NAF (23199) EL CENTRO, CA (07/2015) National Climatic Data Center Federal Building 151 Patton Avenue Asheville, North Carolina 28801

Elevation: -42 ft. below sea level

Latitude: 32.816 Longitude: -115.683 Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	В	Ory ulb emp	В	Vet ulb emp (C)	Po	ew oint mp	Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti- meter (in. hg)
1	2	3	4	5	6	7	8	9	_	11	12	13	14	15	16	17	18	19	20	21	22	23
08 08 08 08 08 08 08 08 08 08 08 08 08 0	0256 0356 0456 0556 0656 0756 0856 1056 1156 1256 1356 1456 1656 1756 1856 1956 2056 2156	<u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>	CLR CLR CLR CLR FEW150 FEW070 FEW070 FEW070 FEW070 FEW070 FEW070 CLR	10.00 10.00	BLDU BLDU	104 103 102 99 96 91 86 84 83 76 79	28.3 28.9 28.9 27.8 27.8 31.1 33.9 35.6 37.2 38.9 40.0 39.4 37.2 35.6 32.8 30.0 28.9 24.4	57 57 57 58 58 59 62 65 66 66 67 66 61 59 60	13.7 14.3 14.5 15.0 16.6 18.1 18.7 19.0 19.7 19.2 18.6 18.1 16.7 19.2 18.6 18.1 16.7 19.2 18.6 18.1 16.7 17.7 18.6	31 32 31 32 33 29 24 33 41 38 35 39 44 44 44 44 44 44 44 44 44 44 44 44 44	0.0 -0.6 0.0 0.6 -1.7 -4.4 0.6 5.0 3.3 1.7 3.9 6.7 6.7 6.7 6.7 6.7 6.7	15 15 15 16 16 11 15 11 11 11 11 11 11 11 11 11 11 11	10 17 20 20 17 13 8 7 11 17 21 25 33 33 33 33 33 33 32 9	240 250 240 260 260 270 250 250	17 28 36 39 40 41 40 39 34 34	29.72 29.72 29.72 29.72 29.74 29.76 29.76 29.76 29.76 29.76 29.76 29.76 29.68 29.68 29.68 29.68 29.68 29.67 29.71 29.71			29.72 29.72 29.72 29.73 29.76 29.76 29.77 29.77 29.76 29.75 29.72 29.70 29.68 29.67 29.68 29.67 29.67 29.67 29.67 29.72 29.74 29.74 29.75	A A A A A A A A A A A A A A A A A A A		29.68 29.68 29.68 29.68 29.70 29.72 29.73 29.72 29.72 29.70 29.68 29.65 29.65 29.64 29.67 29.67 29.67 29.67 29.67 29.67

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